9th International Congress of Dipterology

Abstracts Volume

25–30 November 2018
Windhoek
Namibia

Organising Committee:

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Edited by:
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Front cover image: Tray of micro-pinned flies from the Democratic Republic of Congo (photograph © K. Pannecoucke).

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A pilot study to delimit *tsetse* target populations in Zimbabwe

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Tsetse (Glossinidae) are cyclical vectors of human and animal trypanosomoses currently targeted by the African Union, under the Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC). Elaborate plans to guide intervention are a requirement if effective control of *tsetse* is to be achieved. A model to aid the planning of intervention programmes and assist a fuller understanding of *tsetse* distribution was applied in a pilot study covering 400 km^2 in Masoka, Zimbabwe and targeted two savanna species, *Glossina morsitans morsitans* Westwood and *Glossina pallidipes* Austen. Current data were used to study habitat suitability of both species, based on climatic and environmental data derived from MODIS and SPOT 5 satellite images. Factors influencing distribution were explored, using an Ecological Niche Factor Analysis (ENFA), whilst habitat suitability was predicted using a Maximum Entropy (MaxEnt) model at a spatial resolution of 250 m. Area Under the Curve (AUC), an indicator of model performance, was 0.89 for *G. m. morsitans* and 0.96 for *G. pallidipes*. The probability that flies were really absent from grid cells where they were not captured during the study was then calculated, based on a probability model using a risk threshold of 0.05. Apart from grid cells where *G. m. morsitans* and *G. pallidipes* were captured in the study area, there was a high probability of presence in additional grid cells adding up to 128 km^2 and 144 km^2 respectively. The modelling process promised to be useful in optimising the outputs of presence/absence surveys, allowing the definition of *tsetse* infested areas with improved accuracy.